"A STUDY ON COMPARE TO FIND OUT THE EFFECT OF POSTURAL DRAINAGE WITH PERCUSSION AND ACTIVE CYCLE OF BREATHING TECHNIQUE IN PATIENT WITH CHRONIC BRONCHITIS"

A Dissertation Submitted in the partial fulfillment of the requirement for the Degree of

MASTER OF PHYSIOTHERAPY

With specialization in

ADVANCED PHYSIOTHERAPY IN CARDIO AND RESPIRATORY

Submitted by

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Submitted to

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DEPARTMENT OF POST GRADUATE STUDIES

SHANMUGA COLLEGE OF PHYSIOTHERAPY

(AFFILIATED TO THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY)

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SHANMUGA COLLEGE OF PHYSIOTHERAPY

(AFFILIATED TO THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY)

SALEM.

CERTIFICATE

This is to certify that the project entitled a report on **"A STUDY ON COMPARE TO FIND OUT THE EFFECT OF POSTURAL DRAINAGE WITH PERCUSSION AND ACTIVE CYCLE OF BREATHING TECHNIQUE IN PATIENT WITH CHRONIC BRONCHITIS" submitted by Reg. No: 27092406** is a bonafide work done in the partial fulfillment of requirement for the **MASTER OF PHYSIOTHERAPY** course with Advanced Physiotherapy in Cardio and Respiratory as Specialization of The Tamil Nadu Dr. M.G.R. Medical University, Chennai – 32.

Guide **Principal**

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Internal Examiner:

External Examiner:

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INTRODUCTION

Chronic obstructive Pulmonary Disease is defined as a disease characterized by poorly reversible airflow limitations that is usually both progressive and associated with an abnormal inflammatory response of the lung.

PREVALENCE:

COPD Continues to cause a health and economic burden around the world. It is the 5th greatest cause of disability worldwide. (WHO 1996) it is the only major cause of death increasing in prevalence. A Systemic review of all other studies is about 3% to 10% The chronic obstructive pulmonary disease (COPD) is the fourth major cause of Activity limitation, studies reveal that 5% male and 2.7% female population in India are Affected with COPD and M: F ratio of 1.6:1.

CAUSATIVE FACTORS:

Cigarette smoking is currently a casual factor of COPD in more than 90% of patients, Indicating that environmental factor are involved in the disease However it has been found that only 50-20% of heavy smokers develop COPD suggesting that genetic factor are likely to be important in determining which cigarette smokers are at risk of developing airflow limitation. The number of pack-years of cigarette smoked i.e. Average number of packs/day number of years smoked Gives an idea of relative risk

of COPD. The role of inherited alpha one anti try sin deficiency has become well established as a risk factor for COPD though this deficiency is uncommon only few Studies have done for genetic factors other factor causing COPD are occupation, housing climate, childhood respiratory illness.

POSTURAL DRAINAGE WITH PERCUSSION IN CHRONIC BRONCHTIS:

Postural drainage:

Postural drainage consists of positioning the patient to allow gravity in assisting the drainage of secretions from specific area of lung. The length of time spent in each position and total treatment will depend on the quantity of secretion in each area the time spent an average of 15 to 20 minutes in each position to allow adequate drainage.

Percussion:

Button et al demonstrated that Postural drainage and percussion Performed in head down position may aggravagate gastro esophageal reflux in infants with cystic fibrosis, as a result of this study Button et al modified Postural drainage Positions to tipping and recently published the result of 5 year period in Patients with cystic fibrosis, Showing improved outcomes.

ACTIVE CYCLE BREATHING IN CHRONIC BRONCHITIS:

The active cycle of breathing is gravity- assisted drainage position is an effective airway clearance regimen for individuals who produce excess bronchial secretions. It has shown to be effective in the clearance of bronchial secretions and to improve lung function without increasing or airflow obstruction.

The Active cycle breathing is a flexible method of treatment which can be adapted for use in any patient whom there is problem of excess Bronchial secretions and can be with or without an Assistant. It is a cycle of breathing control, Thoracic expansion Exercise and the forced expiratory Technique. The Whole regimen was renamed the Active cycle of breathing techniques.

OBJECTIVES OF THE STUDY

- To find out the effectiveness of postural drainage with percussion in improving bronchial hygiene in chronic bronchitis patients.
- To find out the effectiveness of the active cycle of breathing technique in improving bronchial hygiene in chronic bronchitis patients.
- To compare the effectiveness of the postural drainage and percussion to active cycle of breathing technique improving bronchial hygiene in patients with chronic bronchitis.

HYPOTHESIS:

Null hypothesis:

There is no significant difference in improving bronchial hygiene in chronic bronchitis patients with postural drainage and percussion

There is no significant difference in improving bronchial hygiene in chronic bronchitis patients with ACBT

ALTERNATE HYPOTHESIS:

There is significant difference in improving bronchial hygiene in moderate chronic bronchitis patients with postural drainage and percussion.

There is significant difference in improving bronchial hygiene in chronic bronchitis patients with ACBT.

REVIEW OF LITERATURE

- ***Thompson (1968)*** Active cycle of breathing technique is work using forced expiration exercises to assist in the mobilization and clearance of secretions in patients with COPD.

Active cycle of breathing technique; In 1968 Thompson and Thompson published their work using forced expiration exercises to assist in the mobilization and clearance of secretions in patients with COPD. The ACBTs are combinations of breathing control, Thoracic expansion control and FET. Breathing control has been referred to as Diaphragmatic breathing, or as Gentle breathing with the lower chest. During breathing control the upper chest and shoulder are relaxed while the subject breathes at a relatively normal tidal volume and rate. The patient should feel a swelling around the waist during inspiration, associated subside with exhalation. Breathing control is basically the defaults relaxed breathing maneuver the more active techniques of ACBT.

- ***Lorin MI, Denning CR (1971)*** did a study to find out where the Gravity-assisted position will facilitate clearance of secretions in patients with abnormalities of the cilia, For example primary ciliary dyskinesia and the drainage of secretion from open abscess cavities.

Chest physiotherapy consists of postural drainage, vibration, shaking and percussion the effect of postural drainage has been evaluated by several

workers with conflicting results, while neither vibration, shaking and percussion alone been examined. The present study confirms the value of chest physiotherapy as a whole in accelerating the clearance of excessive bronchial secretions from all lung region patients with stable chronic air ways stable chronic air ways obstruction and highlights the limitation of coughing alone.

- ***Pryor (1979)*** described the mechanism of forced expiratory technique in patients with cystitis fibrosis, using the concept of the equal pressure point, as presented by mead et al. they reported that use of forced expiratory technique with postural drainage improved secretion clearance, compared to postural drainage alone.
- ***Riesman and co workers (1988)*** compared the long term effects of postural drainage with percussion and forced expiratory technique to forced expiratory technique alone, in 69 patients with CF, over a 3-years period.

The chest physical therapy method included routine drainage positions and percussion, for 8 min each. Forced expiratory technique consisted of 2 maximal inspirations followed by a prolonged, controlled expiration. A minimum of 3 coughs were performed until there was no sputum to expectorate.

Patient who discontinued chest physiotherapy but continued to do forced expiratory technique alone had significantly greater decline in forced

expiratory volume in first, second and expiratory flow in the middle half of the forced vital capacity, and trended towards more exacerbations and hospital days.

- ***Gallon (1991)*** found that chest clapping (manual chest percussion) and mechanical chest percussion will increase intrathoracic pressure. He concluded that chest clapping or mechanical percussion may be a useful airway clearance technique and may assist in the mobilization of secretions.
- ***Hasani (1994)*** correlated the viscoelastic properties of sputum and maximum expiratory technique in 19 patients with airways obstruction. Each patient underwent control, cough, and forced expiratory technique. Compared with control run clearance (16± 3%), there was better clearance from the whole lung with cough (44± 5%), and better clearance of inhaled radio labeled aerosol from the trachea, inner, and intermediate regions of the lung. There were no significant differences between cough and forced expiratory techniques.

The study has suggested that both the viscoelastic properties of lung secretions and the peak flow attained during stimulated cough influence clearance. This study examines the possible association of the viscoelastic properties of sputum and maximum expiratory flow with measured effectiveness of mucus clearance induced by instructed cough and by forced expiration technique in patients with airways obstruction.

- ***Hardy KA(1994)*** in his book "A review of airway clearance ; new techniques, indications, and recommendation" explains that performance of cough and huff by the patients is influenced by lung volumes, sensitivity of airways reflexes, muscle biomechanics, modifications, pain, and the patients state of mind.

With the implementation of aggressive, effective airway clearance therapy, pathologic micro organisms and inflammatory by products are removed. Such therapy mobilizes retained secretions, augments mucociliary transport, and enhances clearance of thick mucus.

- ***Giles and colleagues (1995)*** *found* a small but statistically significant desideration with postural drainage and percussion, and a small but significant improvement in saturation with autogenic drainage. They found neither significant difference in amount of sputum with autogenic drainage (14.0+ 3.5g) versus postural drainage (10.4 +3.0g) nor difference in pulmonary function variables. Compared to postural drainage, autogenic drainage was well tolerated and resulted in less desaturation, and there was an improvement at 1 hour after treatment. Postural drainage and autogenic drainage had similar short-term benefits in patients with cystic fibrosis.
- ***Vitacca Mclinic (1998)*** has conducted a study on the effect of deep diaphragmatic breathing in COPD patients. They concluded that there

is improvement in chest wall motion and decreases the energy cost of breathing.

- ***Savci (2000)*** compared autogenic drainage and ACBT over a 20-day period in patients with COPD. Both therapies improved forced vital capacity, PEF, PaO_2, SaO2, exercise performance and autogenic drainage also improved FEVI, FEF25$\pm$75%, $PaCO_2$, and Dyspnea score. Improvement in PEF and $PaCO_2$ were statistically better in the autogenic drainage group than the ACBT group, whereas increase in SaO_2 was greater in the ACBT group than the autogenic drainage group Pryor and colleagues.
- ***Guyton and Hall (2003)*** In the their book "Text book of medical physiology" explains that coughing follows deep inspiration and involves the generation of high intra thoracic pressure against a closed glottis and then suddenly opened to allow rapid expiration.
- ***Prayor JA and Webber BA (2004)*** in their in book "Physiotherapy for Respiratory and cardiac problems" Huffing follows an inspiration and is sharp forced expiratory maneuver the glottis remains open.

METHODOLOGY

POPULATION:

- Patients with chronic bronchitis who satisfied the inclusion criteria are included in study

SELECTION CRITERIA:

a) INCLUSION CRITERIA:

- Age : 40-60 years.(Male only)
- Chronic bronchitis patient with physician's reference
- FEV1/FVC ratio of less than 50-70%
- FEVI value less than 50-70% of the predicated.

b) EXCLUSION CRITERIA:

- Clinically diagnosed mild and severe chronic bronchitis patients.
- Asthma patients.
- Patients with other lung complication
- Cardiac complication
- Neurological problems
- Patients with Metastasis conditions.
- Un Co-operative patients.

- Patient who is not able to understand the procedure.
- Subjects suffering from traumatic complication including rib fracture

SAMPLE SIZE

The sample size consisted of 30 subjects who satisfied the inclusion criteria. The study subjects were divided in to three groups i.e. Group-A and Group-B and Group-C consisting of 10 subjects in each group.

Group A- postural drainage and percussion

Group B- Active cycle of breathing technique

Group C- No Exercise

SAMPLING TECHNIQUE

Simple random sampling was used to divided the three groups

RESEARCH DESIGN

A comparative study

STUDY SETTING

This study was conducted at the Department of Physiotherapy Shanmuga institute of Post-graduate Medical Sciences, Salem–7 under the super version of concerned authority.

MATERIALS USED

- Spiro meter
- Thick towel
- Pillows
- Tilt table
- Couch
- Sputum bowl

PROCEDURE:

Postural drainage and percussion:

After selecting the subjects through inclusion criteria, the purpose and the procedure of the study will be explained. And consent will be obtained. For this study sample is divided into three groups of each.

GROUP A: Postural drainage with percussion Group

GROUP B: Active cycle of breathing technique Group

GROUP C: No Exercises.

Postural drainage with percussion group protocol:

1. Relaxation exercise; Jacobson progressive relaxation exercise. For the shoulder and upper chest.
2. Percussion and diaphragmatic breathing exercises.

Fig 1: Diaphragmatic breathing exercises (using one hand)

3. Incentive Spiro meter training

ACBT group protocol:

1. Relaxation exercise; Jacobson progressive relaxation exercise.

   For the shoulder and upper chest

Duration per session: 15-20 minutes / session

No. of sessions per day: Twice a day

No. of days per week: 5Days

Duration of the study: 3 weeks.

Active cycle of breathing technique:

- The patient is asked be in relaxed, sitting.
- Then the patient was taught minutes of relaxed diaphragmatic breathing (breathing control)
- The patient is asked to do active deep inspiration with passive relaxed exhalation (Thoracic expansion exercise)
- Followed by relaxed diaphragmatic breathing (breathing control)
- After that patient is enquired whether he felt secretions entering the larger central airway, and then to do 2-3 huffs (forced exhalation technique) starting at low volume, followed by 2-3 huffs at higher volume, followed by relaxed breathing control.
- This is repeated 2-4 times according to patient tolerance.
- Both groups are evaluated before training by using pulse oxymeter and spirometer for pulmonary function. 6 min walk test for exercise performance and dyspnea grading for evaluating dyspnea.

Spirometer:

- Subjects pulmonary function was assessed by spirometer
- These subjects were tested in sitting position and this position is consistent for repeated testing of the subject. Since FVC and

FEVI is a effort dependent maneuver, careful instructions in a language which they can easily understand were given to the subject for their better understanding coordination and cooperation.

- Mainly three parameter that is FVC, FEVI and FEVI/FVC ratio were taken.
- A cough, an inspiration, a valsalva maneuver, a leak or an obstruction is considered as disqualifying the trial.

Six minute walk test:

- Pre-test evaluated of the blood pressure, pulse rate, respiratory rate is taken
- Then the patient is instructed to walk on a measured corridor at his faster pace and cover the longest possible distance over 6 minute under the supervision.
- 6 minute walk test is a symptom limited walk test
- Post-6 minute walk test evaluated of the blood pressure, pulse rate and respiratory rate are taken immediately at the zero minute and sixth minute.
- The distance covered in the six minute is measured accurately.

OUTCOME MEASURES:

- Pulse Oxymeter
- Spirometery
- Forced expiratory volume in one second (FEV1)
- Forced vital capacity (FVC)
- Borg category scale for measurement of dyspnea.

0- Nothing at all

0.5- Very very slight (just noticeable)

1- Very slight

2- Slight

3- Moderate

4- Somewhat severe

5- Severe

6-

7- Very severe

8-

9- Very very severe (almost maximal)

10- Maximal

Pulmonary function test:

Spirometer was performed on the patient in the seated position using a spiro win genesis. Forced expiratory volume in one second (FEVI) forced vital capacity (FVC) and FEVI/FVC ratio.

Both groups were evaluated after three weeks of training as that of training as that of that pre evaluation. The results of both groups are statistically analyzed and the better outcome is taken out.

Fig 2: Spirometer attached with laptop

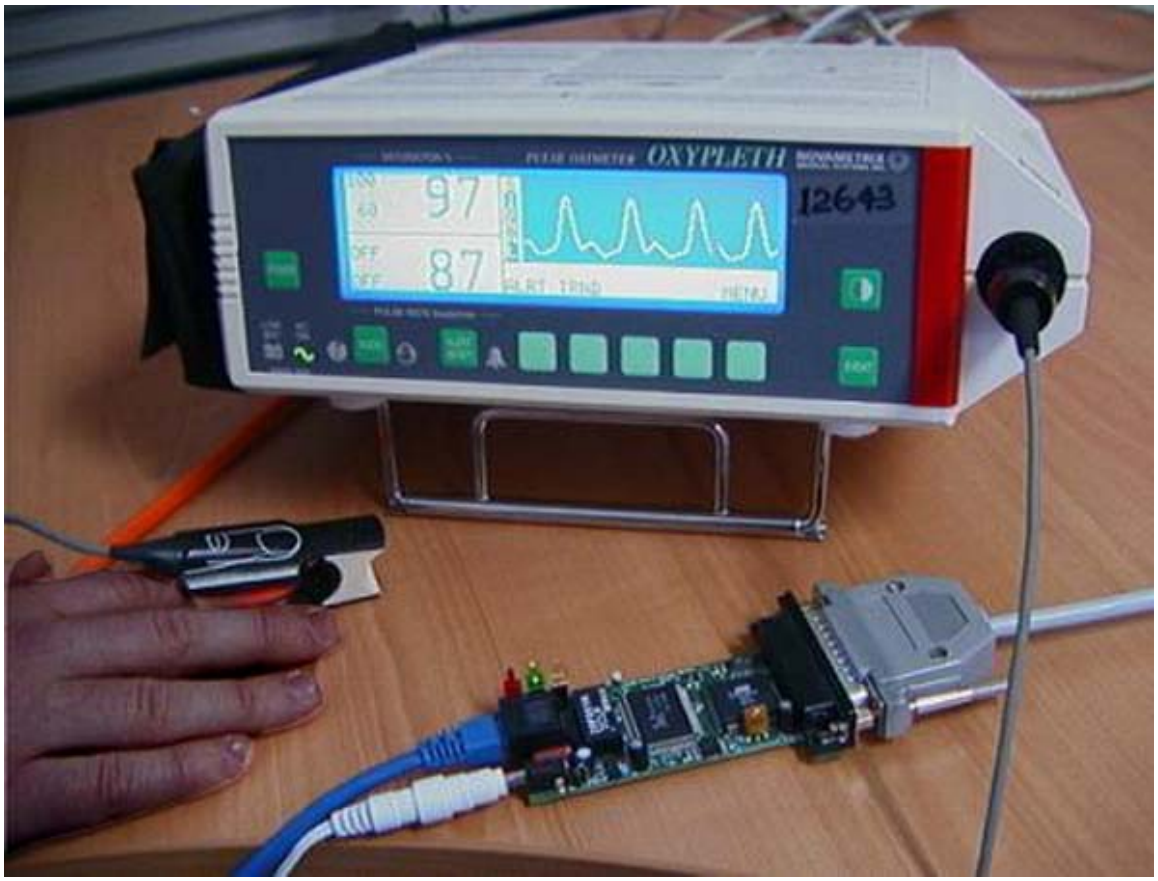


Fig 3: Pulse oxymeter

RESULTS

Statistical Methods:

Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean **± SD** (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5% level of significance. Analysis of variance (ANOVA) has been used to find the significance of study parameters between three or more groups of patients Student t test (two tailed, dependent) has been used to find the significance of student parameters on continuous within each group. Student t test has been used to find the homogeneity of parameters on continuous scale 95% confidence interval has been computed to find the significance of change or difference (delta) is statistically significant otherwise not significant

1. Analysis of Variance: F test for K P Population means

Objective: To test the hypothesis that K samples from K P Population with the same mean.

Limitations: It is assumed that Population are normally distributed and have equal variance. It is also assumed that samples are independent of each other.

Method, Let the j^{th} samples contain nj elements (j=1, 2,…K). Then the total number of elements is

$$N = \sum nj \qquad x.j = \sum \frac{xij}{nj}$$

$$S_1^2 = \frac{\sum\sum_{i-1}^{nl}\left(x1 - \bar{x}.j\right)^2}{N-K} \qquad S_2^2 = \frac{\sum_{i-1}^{n1} nj\left(\overline{x.j} - \bar{x}..\right)^2}{K-1}$$

$F = S_2^2 / S_1^2$ which follows F distribution (K-1, N-K)

2. Student t-test paired comparisons

Objective: To investigate the significance of the difference between single population means. No assumption is made about the population variances

$$t = \frac{\left(\bar{x}1 - \bar{x}2\right)}{s/\sqrt{n}}$$

Where $s = \sqrt{\sum\left(di - d\right)^2 / n - 1}$

And di is the difference formed for each pair of observations

3. Effect Size

$$d = \frac{Mean1 - Mean2}{PooledSD}$$

No effect (N)	d<0.20
Small effect (S)	0.20<d<0.50
Moderate effect (M)	0.50<d<0.80
Large effect (L)	0.80<d<1.20
Very large effect (VL)	d<1.20

4. Significant figures

+ Suggestive significance (P value: 0.05<P<0.10)

* Moderately significant (P value: 0.01<P<0.05)

** Strongly significant (P value: P<0.01)

STUDY DESIGN

A Comparative Evaluation study with 30 patients with chronic bronchitis is randomized in to three groups, 10 in Group A (Postural drainage with Percussion group), 10 patients in Group B (Active cycle of breathing technique group) and 10 patients in Group C (No exercise) is undertaken to study the effect effectiveness of Postural drainage. Active cycle breathing on FEVI, Pulse and Dyspnea.

Table 1: Comparison of Age distribution of patients studied

Age year in	Group A	Group B	Group C
40-45	2(20.0%)	2(20.0%)	2(20.0%)
46-50	1(1.0%)	0	4(40.0%)
51-55	5(50.0%)	1(10.0%)	0
56-60	2(20.0%)	7(70.0%)	4(40.0%)
Total	10(100.0%)	10(100.0%)	10(100.0%)
Mean + SD	52.00+6.83	54.60 + 7.68	52.30 + 5.93

Samples are age matched with P=0.654

DATA PRESENTATION

Table -2 GROUP A: (PD&P)

S.NO	Pre (Fev1)	Post (Fev1)	Pulse(pre) Oxymetry	Post pulse Oxymetry	Dyspnea Pre	Dyspnea Post
1.	2.72	1.53	85.6	95.5	3	2
2.	2.46	0.46	89.5	99.6	4	3
3.	2.70	0.72	89.5	99.5	3	2
4.	2.73	1.03	94.6	100.5	3	2
5.	2.77	3.31	85.6	95.4	4	3
6.	3.34	3.20	85.3	99.6	3	1
7.	2.65	1.63	89.5	100.5	4	2
8.	2.35	1.82	85.5	95.7	3	1
9.	2.13	0.89	86.5	96.2	4	2
10.	3.23	1.17	89.5	99.5	3	2

Table -3 GROUP B: (ACBT)

Sl. NO	Pre (Fev1)	Post (Fev1)	Pulse(pre) Oxymetry	Post pulse Oxymetry	Dyspnea Pre	Dyspnea Post
1	2.37	0.98	89.5	99.5	3	1
2	2.43	2.49	85.5	95.5	3	2
3	2.93	1.20	89.4	99.5	3	2
4	2.25	0.96	86.2	96.3	4	2
5	1.87	1.18	85.5	97.2	4	1
6	2.14	0.64	85.5	95.5	3	2
7	2.60	0.42	86.7	99.5	4	2
8	3.36	3.00	80.5	100.5	4	3
9	2.37	0.98	89.5	100.0	3	1
10	1.87	1.19	85.5	95.5	3	2

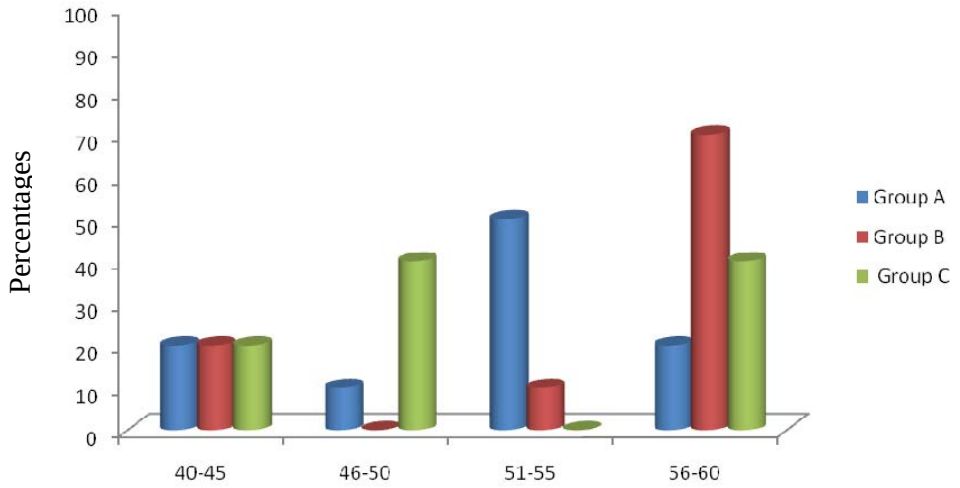
Table -4 GROUP C: (NO EXERCISES)

Sl. NO	Pre (Fev1)	Post (Fev1)	Pulse(pre) Oxymetry	Post pulse Oxymetry	Dyspnea Pre	Dyspnea Post
1	2.86	2.08	89.5	99.5	3	1
2	2.00	1.98	87.5	97.3	4	3
3	2.05	1.37	92.5	100.5	3	2
4	2.62	1.54	85.5	95.0	4	3
5	2.45	0.36	85.0	95.6	3	2
6	2.73	1.03	87.2	97.3	3	1
7	3.36	2.03	87.5	99.5	4	2
8	2.36	1.84	90.5	100.5	3	2
9	2.13	0.85	85.6	95.5	3	1
10	3.20	1.16	87.4	96.3	3	1

DATA ANALYSIS AND INTERPRETATION

Table 5: Comparison of Outcome measures (per – intervention) in three groups of patients

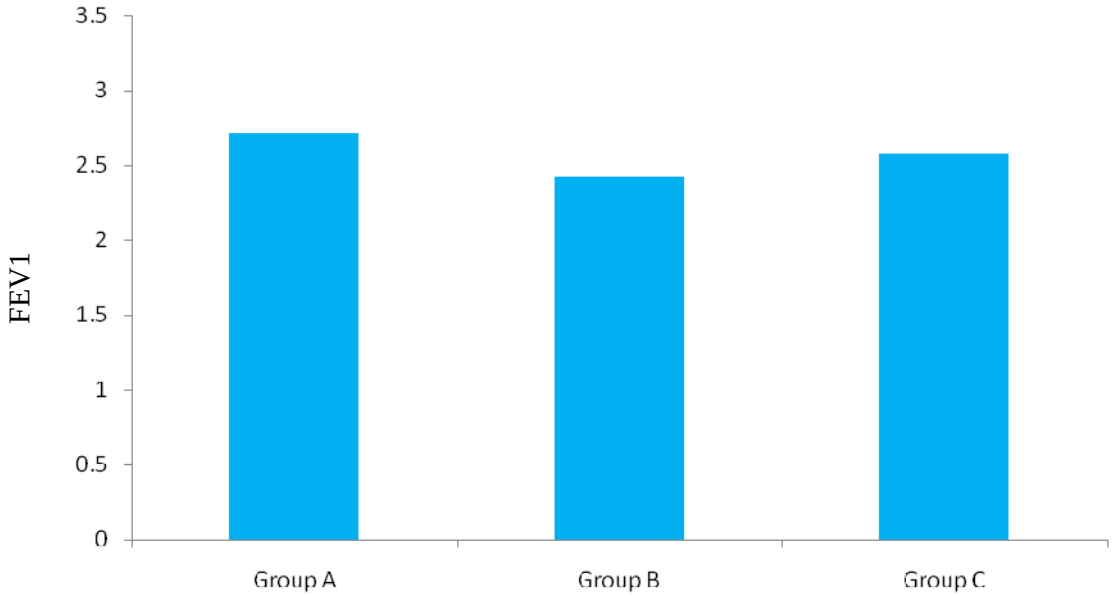
Outcome measures	Group A	Group B	Group C	P value
FEV I	2.72+0.37	2.42+0.46	2.58+0.47	0.343
Pulse	88.11+2.97	86.38+2.72	87.82+2.37	0.324
Dyspnea	3.40+0.52	3.40+0.52	3.30+0.48	0.878

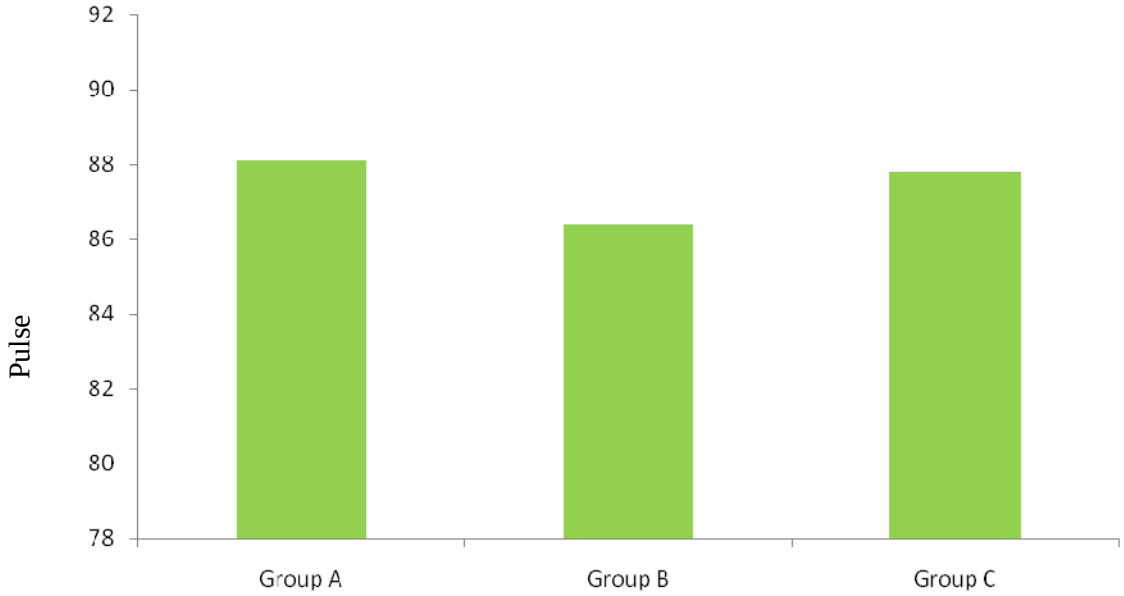


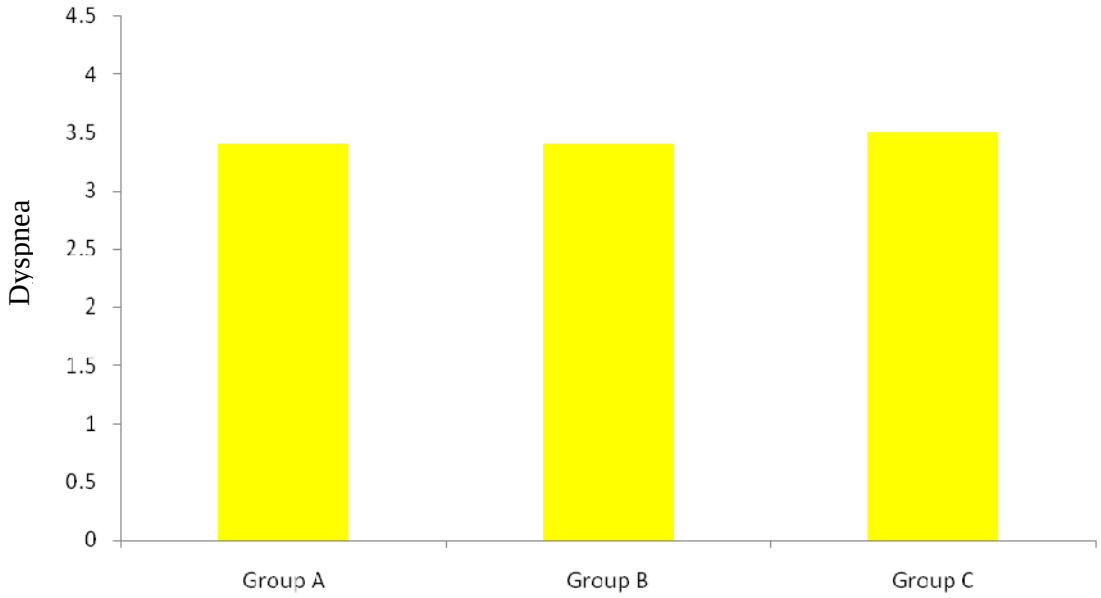
Age in years

Age distribution is statistically matched between the groups.

In the table 5 basic characteristic of all the three groups were studied. The mean values obtained for age in years was about 50.00+ 6.89 for group A. 54.60+7.68 for group B and 52.30+5.93 for group A


FEV1
3.5
3
2.5
2
1.5
1
0.5
0
Group A
Group B
Group C

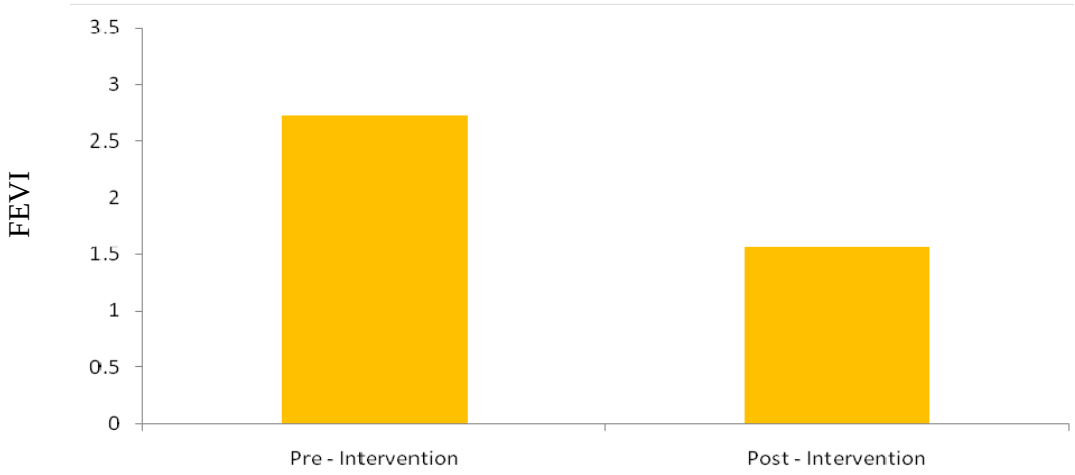

Pulse
92
90
88
86
84
82
80
78
Group A
Group B
Group C



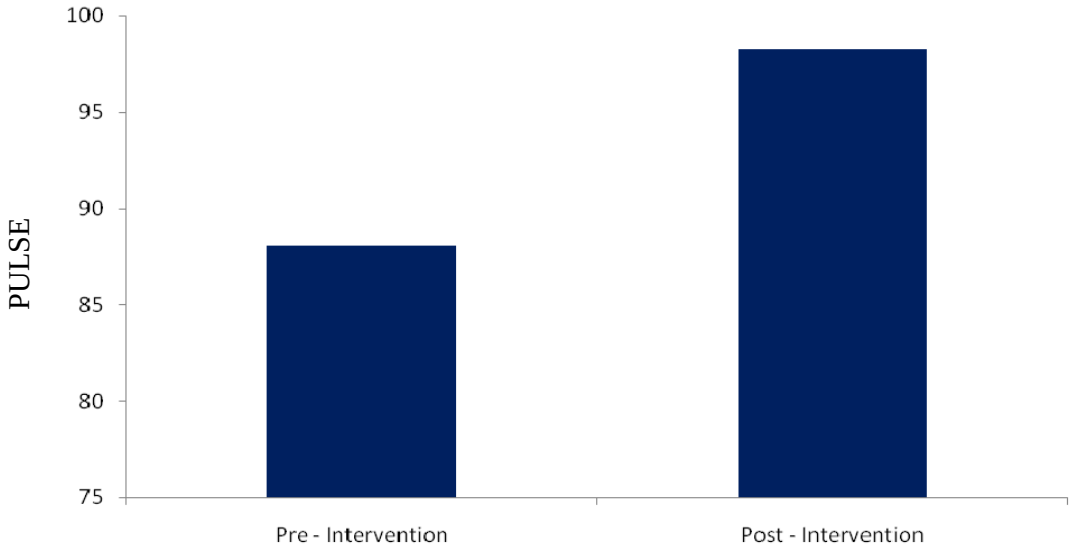
The table - 5 show the comparison of outcome measures FEV 1, pulse, Dyspnea the three groups. In group A, the pre assessment score of FEV 1 was2.72+0.37, for group B was 2.42+0.46, and for control 22.58+0.47 and P=0.343. The pre assessment pulse was for group A was 88.11+2.97, for group B was 86.38+2.72, for group C was 87.3+2.37 respectively with a p value of 0.324. The pre assessment Dyspnea score for group A was 3.40+0.52, for group C was 3.30+0.48 respectively with a p value of 0.878.

Table 6: Evaluation of postural drainage with percussion on FEV 1, Pulse and Dyspnea in patients of Group A

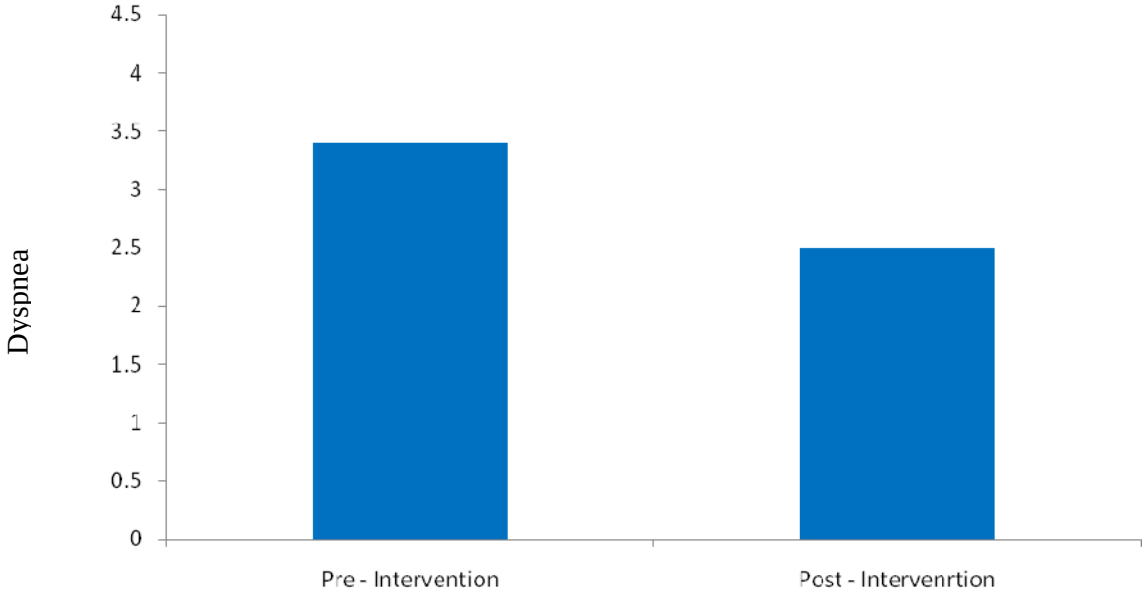
Outcome measures	Pre-intervention	Post-intervention	Delta	95%CI	P value	Effect size
FEV 1	2.72+0.37	1.57+0.87	-1.32+.08	-1.75 to 0.50	0.003**	1.96(VL)
Pulse	88.11+2.97	98.20+2.19	10.09+2.01	8.65 to 11.53	<0.001**	3.91(VL)
Dyspnea	3.40+0.52	2.00+0.67	-1.40+0.52	-1.777 to 1.03	<0.001**	2.35(VL)



Group – A



Group - A



Group - A

The table 6 shows the Evaluation of Postural drainage with percussion on FEV1, pulse, Dyspnea between the groups A,

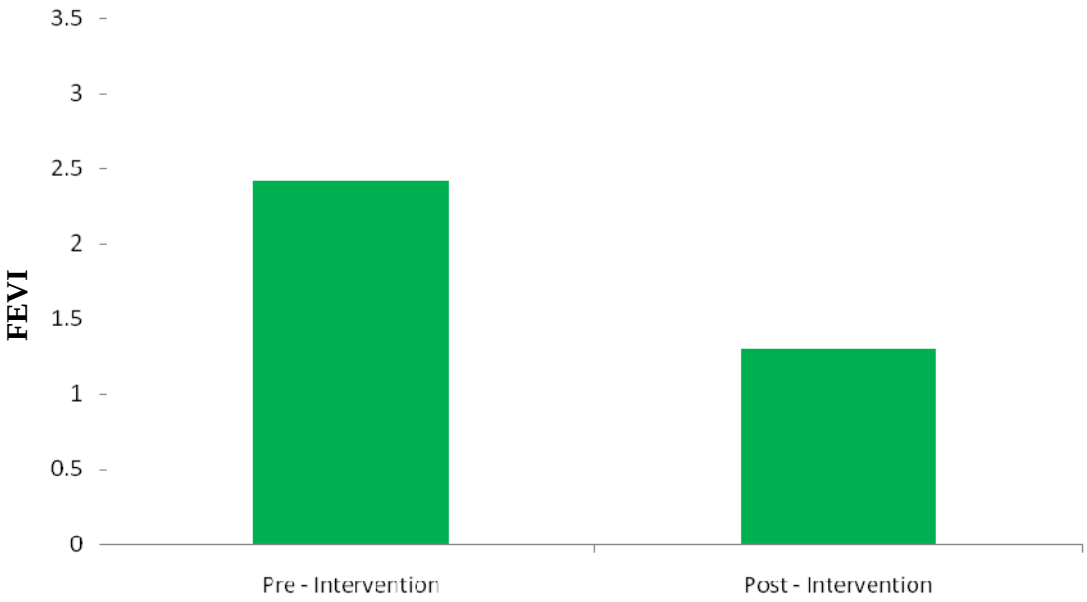
The pre assessment score of FEV1 was2.72+0.37, the post intervention score 1.57+0.98, group A showed a large effect size with 1.96, and a statistical significance with a p value of 0.003.

The pre assessment pulse was for group A was 88.11+2.97 and post intervention score was 98.20+2.19, and showed a large effect size with 3.91 and a statistical significance with a p value of 0.001.Which showed a significant change

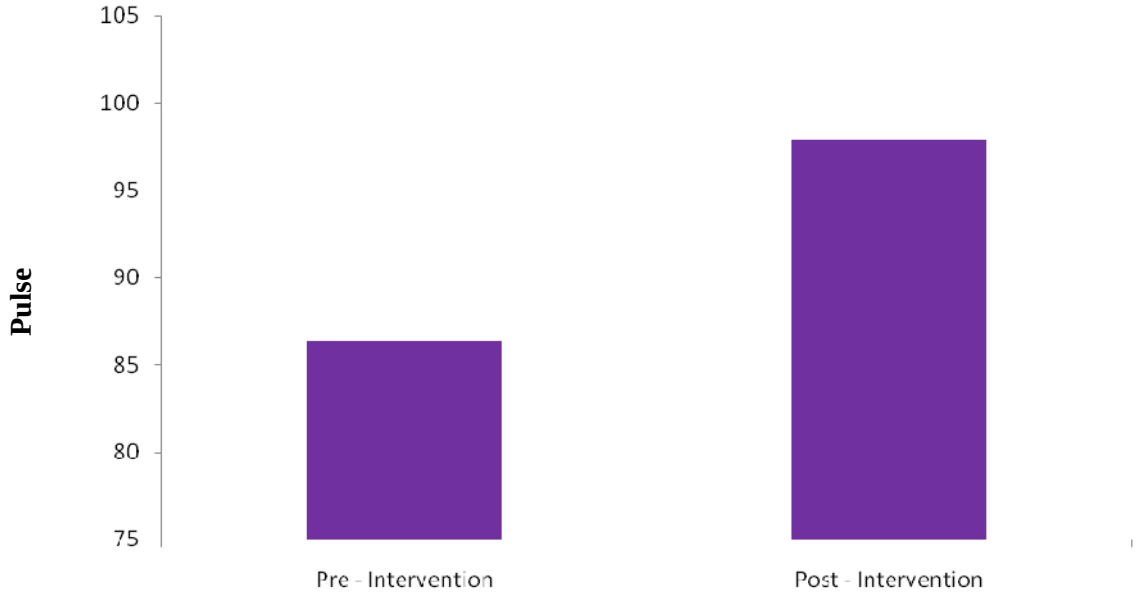
The pre assessment Dyspnea score for group A was 3.40+052 and post intervention score was 2.00+0.67, and showed a large effect size with 2.35 and a statistical significance with a p value of 0.001.which showed a significant change

Table 7: Evaluation of Active cycle of breathing technique on FEV1, Pulse and Dyspnea in patients of Group B

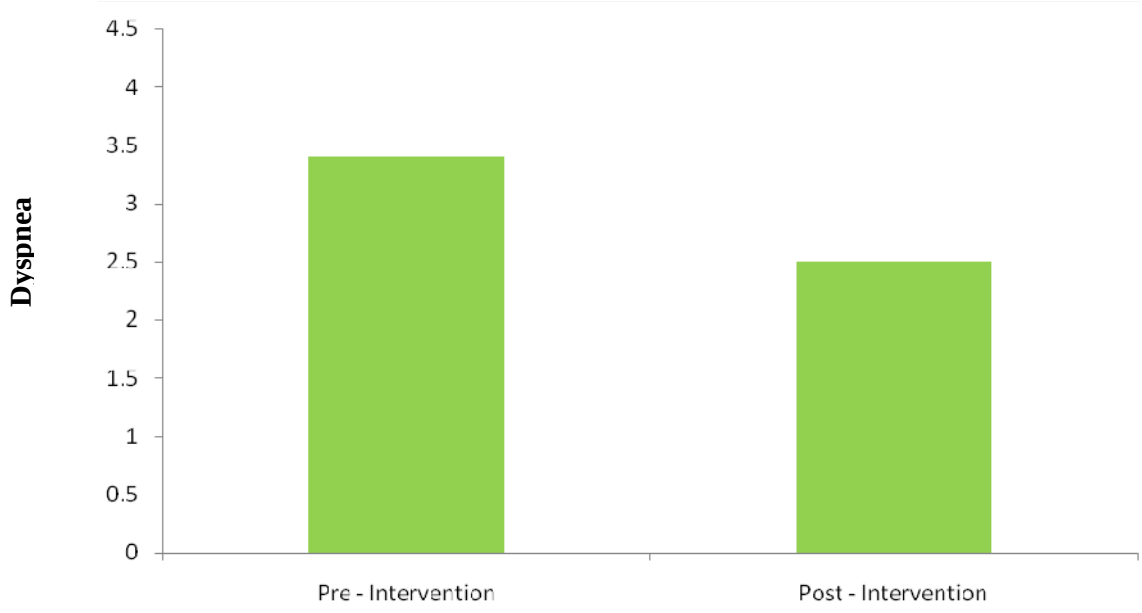
Outcome measures	Pre-intervention	Post-intervention	Delta	95%CI	P value	Effect size
FEV 1	2.42+0.46	1.30+0.81	-1.15+0.68	-1.60 to 0.63	0.001**	1.81(VL)
Pulse	86.38+2.72	97.90+2.09	11.52+3.12	9.28 to 13.76	<0.001**	4.79(VL)
Dyspnea	3.40+0.52	1.80+0.63	-1.60+0.69	-2.10 to -1.09	<0.0011**	2.78(VL)



Group B



Group B



Group B

The table 7 shows the evaluation of Active cycle of breathing technique on outcome measures FEV1, pulse, and Dyspnea post intervention in the group B

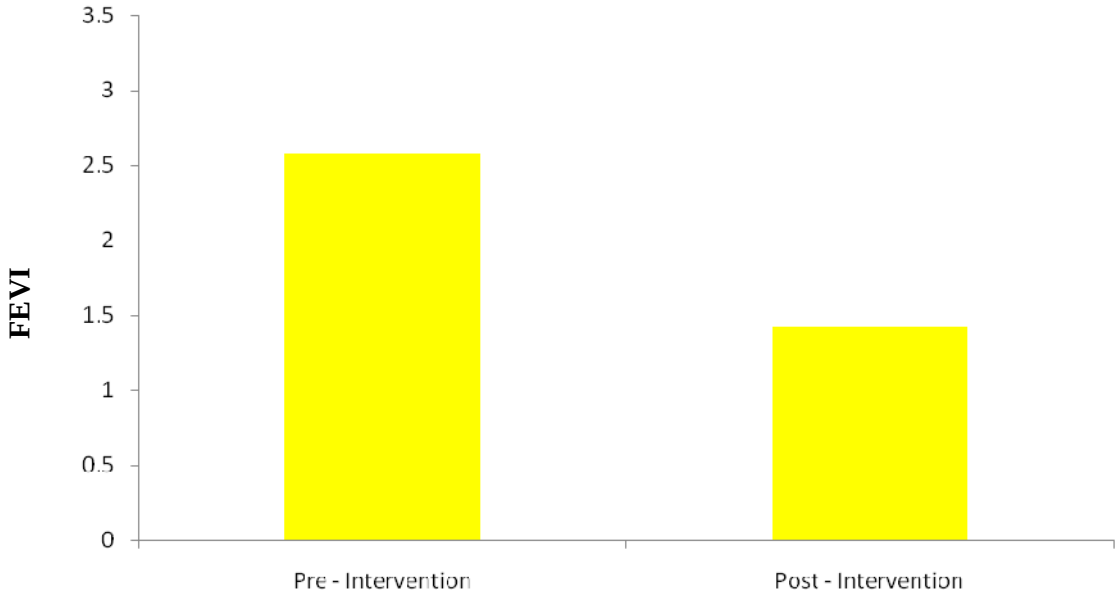
The pre assessment score of FEV1, was 2.42+0.46, the post intervention score 1.30+0.81, and showed a large effect size with 1.81 and a statistical significance with a p value of 0.001.

The pre assessment Dyspnea score for group B was 86.38+2.72 and post intervention score was 97.90+2.09, and showed a large effect size with 4.79 and a statistical significance with a p value of 0.001. Which showed a significant change.

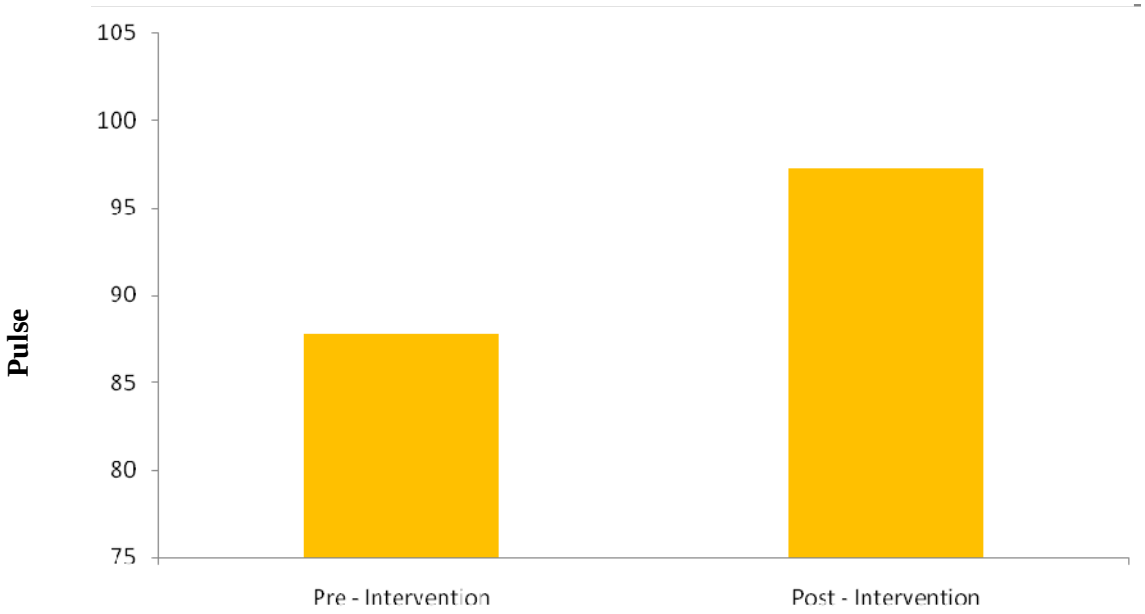
The pre assessment Dyspnea score for group B was 3.40+0.52 and post intervention score was 1.80+0.63, and showed a large effect size with 2.78 and a statistical significance with a p value of 0.001.which showed a significant change

Table -8

Outcome measures	**Pre-intervention**	**Post-intervention**	**Delta**	**95%CI**	**P value**	**Effect size**
FEV 1	2.58+0.47	1.42+0.58	1.15+0.67	-1.63 to –0.67	<0.001**	2.91(VL)
Pulse	87.82+2.37	97.30+2.13	9.84+1.6	8.33 to –10.63	<0.001**	4.15(VL)
Dyspnea	3.30+0.48	1.80+0.79	1.50+0.52	-1.87 to –1.12	<0.001**	2.36(VL)



Group C



Group C

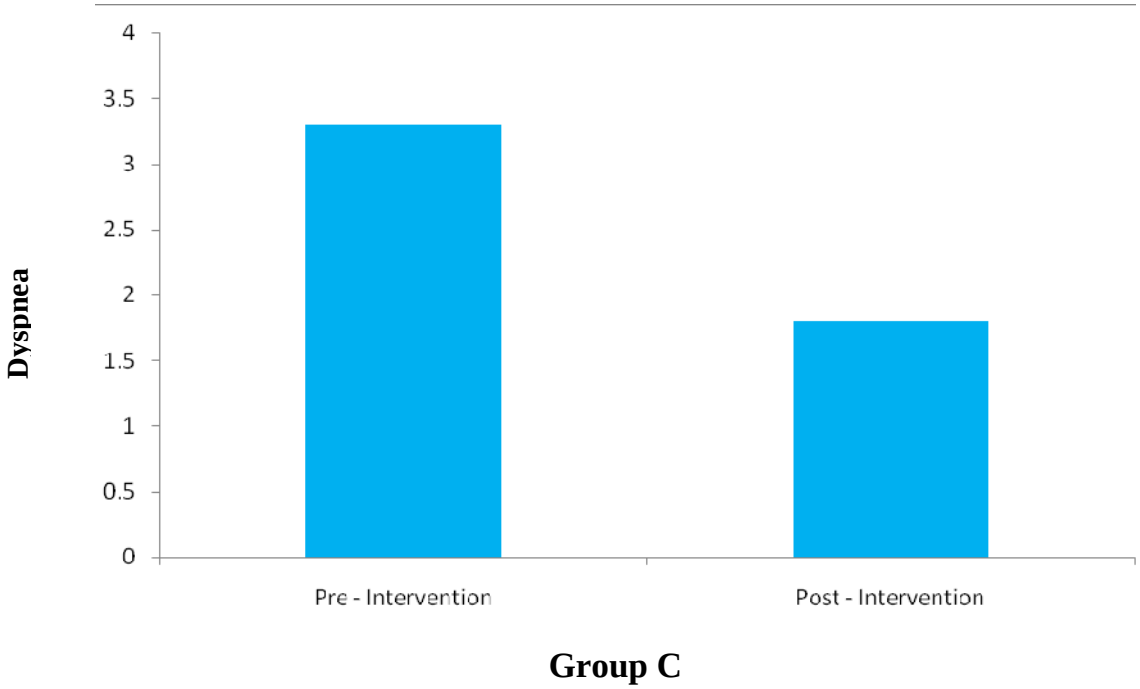
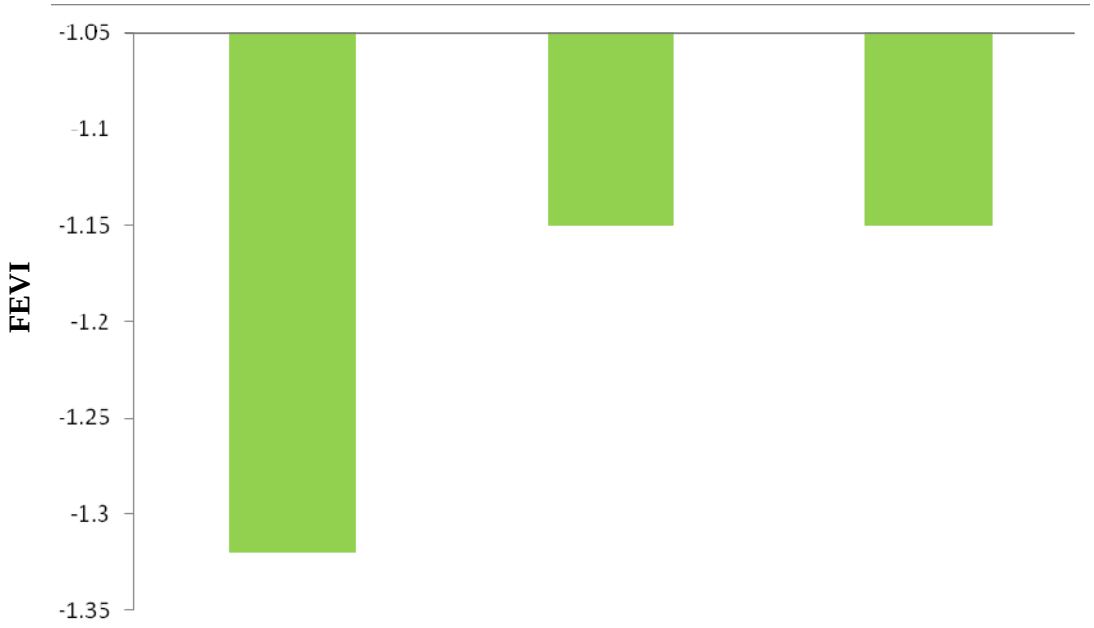
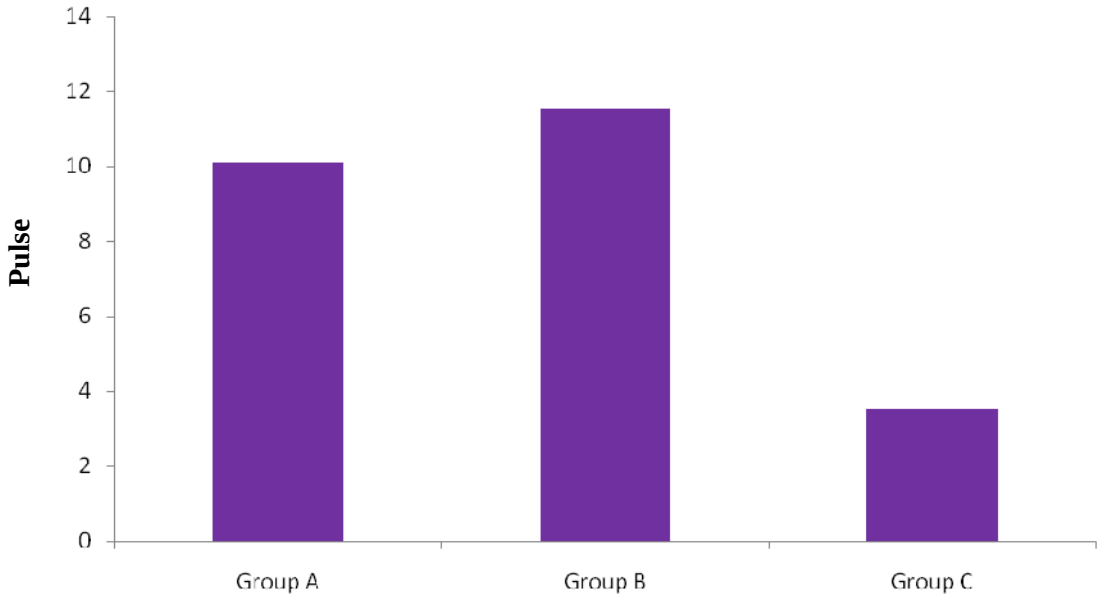
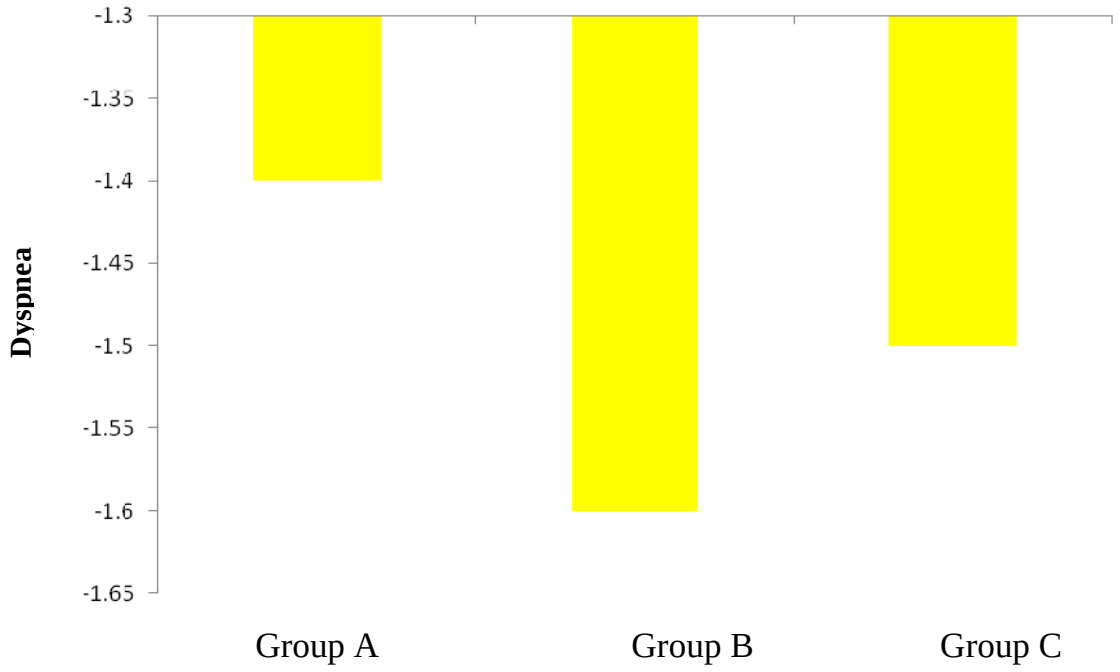


Table 9: comparison of outcome measures (delta) in three groups of patients

Outcome measures	**Group A**	**Group B**	**Group C**	**P Value**
FEVI	-1.32±0.87	-1.15±0.68	-1.15±0.67	0.994
Pulse	10.09±2.01	11.52±3.12	9.84±1.60	0.154
Dyspnea	-1.40±0.52	-1.62±0.69	-1.50±0.52	0.750


-1.05
-1.1
-1.15
-1.2
-1.25
-1.3
-1.35
FEVI
Group A
Group B
Group C


14
12
10
8
6
4
2
0
Pulse
Group A
Group B
Group C



The delta change in FEV1 In the Group A was -1.32±0.87. Group B was -1.15±0.68, Group C was -1.15±0.67 with a p value of 0.994.

In pulse oxymetery the delta change in group A was 10.09±2.01, Group B was -11.52±3.12, and group C was 9.84±1.60 with p value of 0.154.

In Dyspnea the delta change in group A was -1.40±0.52, Group B was -1.60±0.69, and group C was -1.50±0.52 with p value of 0.750.

DISCUSSION

This study was carried out to compare the effectiveness of postural drainage with Percussion and Active cycle breathing technique in patients with chronic bronchitis. After the treatment Session it was observed that Group A (Postural drainage with Percussion) showed improvement in Spirometry, Dyspnea post intervention.

In Group B (Active cycle of breathing technique) which also showed improvement post intervention. As well as Group C (control) also showed changes. According to James B Fink It was observed that Directed Cough, Forced expiratory techniques, Active cycle of breathing technique. Active cycle of breathing technique, autogenic drainage are simple maneuver that can enhance patient's ability to clear secretions and marinating airway patency.

Hence the present study also showed change post intervention in group A and group B with postural drainage with percussion and active cycle of breathing technique.

LIMITATIONS

- Comparison between male and female patients was not taken into consideration. Only males were included in the study.
- Depending up on the stage of FEV1 the values can change.
- Follow-up was not done.
- Sample size is small.

RECOMMENDATIONS

- Since this study was done only on male population, it can be done on female population also with chronic bronchitis.
- When doing further research, one might also consider trying difference training protocols.
- The replication of this study can be done on other group benefits from it such as patients with chest wall and upper abdominal surgery, patients following spinal cord injury.

CONCLUSION

The aim of the study was to analyze the effect postural drainage with percussion and active cycle of breathing technique in patients with chronic bronchitis. The study shows that there is significant difference between the postural drainage and percussion per and post intervention and also shows significant difference pre and post intervention with Active cycle breathing technique in patients with chronic bronchitis.

When compared the effectiveness of the postural drainage and percussion to active cycle of breathing technique improving bronchial hygiene with chronic bronchitis there was no significant different and no treatment is superior over the other.

SUMMARY

Chronic bronchitis is one of the common COPD disorders and is defined as chronic cough and expectation which persists for at least 3 months period for at least 2 consecutive years.

The aim of the study was to analyze the effect of postural drainage with percussion and cycle of breathing technique in patients with chronic bronchitis. The study shows that there is significant difference between the postural drainage and percussion pre and post intervention and also shows significant difference pre and post intervention with active cycle breathing technique in patients with chronic bronchitis.

When compared the effectiveness of the postural drainage and percussion to active cycle of breathing technique improving bronchial hygiene in patients with chronic bronchitis there was no significant difference and no treatment is superior over the other.

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A CONSENT TO PARTICIPATE VOLUNTARY IN A RESEARCH INVESTIGATION

Department of Physiotherapy,

Shanmuga Institute of Medical Sciences,

Salem – 7, Tamilnadu.

Name :

Age :

Sex :

Occupation :

Address :

Declaration

I have fully understood the nature and purpose of the study. I accept to be a subject in this study and I declare that the above information is true to my knowledge.

Signature of the subject

Place :

Date :

APPENDIX

CARDIO AND RESPIRATORY ASSESSMENT

Subjective:

Date of Admission:

Surgery:

Assessment:

Name :

Age :

Sex :

Occupation :

Address :

Chief complaints :

History:

Past :

Present :

Family :

Social :

Personnel :

Vital Signs:

BP :

HR :

RR :

Temperature:

Sing / symptoms:

Cough : Dry / productive

Dyspnea : Exert ional / acute onset / Orthopnea.

Hemoptysis : frank / blood Streaked / Blood Sainted / Rusty.

Sputum : Serous / Mucoid / purulent / mucopurulent.

Chest pain : Pleural / Cardial.

Wheeze :

Fever :

Fatigue :

Palpitation :

Syncope :

Nausea / vomiting :

Pain assessment:

Side :

Site :

Onset : Gradual / Sudden

Type : Constant / Intermittent

Duration : Hrs / Day / Wks / Month.

Character : Stabbing / throbbing / pricking / radiating.

Aggravating factors :

Relieving factors :

Pain on ADL :

VAS :

Objective:

On Observation / inspection:

Physique : Ectomorphic / Mesomorphic / Endomorphic.

Voice : Horse / Smooth.

Breathlessness :

Clubbing :

Cyanosis :

Accessory muscles: Hypertrophy / Hypotrophy.

Intercostal Recession :

Chest deformities : Scoliosis / Kyphosis / Lordosis / pigeon Chest / Funnel chest / Barrel chest.

Chest expansion : Symmetry
Rate of Respiration.
Rhythum of Respiration

Oedema : Pitting / Non Pitting.

Anaemia :

Trophic changes :

Face Changes :

<u>On palpation:</u>

- Swelling
- Pain & tenderness.
- Xanthomas.
- Lymph nodes.
- Tracheal position.
- Cardicac impulse.
- Aymmetry.
- Tactile vocal fremitus.

- Skin nodules.
- Arterial pulse.
- Jugular venous pulse.

On examination:

Blood pressure :

Arterial Pulse :

Jugular Venous pressure :

Respiration:

- Rate
- Rhythm
- Pattern
- Chest expansion

Dyspnea Examination:

- Dyspnea scale
- 6 Min walk test

Percussion:

- Normal
- Hyper resonant
- Dullness.

Auscultation:

Lung

Heart Sounds

Vesicular / Bronchial

Added sounds:

Wheeze Murmurs

Crepitation Pericardial rub

Pleural rub:

Vocal resonance:

Bronchophony

Ego phony

Whispering Pectoriquy

Sputum examination:

Colour : pink / black / green / yellow / white / brown.

Culture :

Volume :

Provisional diagnosis:

Problem list:

Short term goal

Long term goal

Follow – Up:

Home Advice:

DATE:

Signature of the cardiologist Signature of the invigilator

Signature of the chief physiotherapist